The state-led development and subsequent broad adoption of the Common Core State Standards (CCSS, 2010) affect educational policy as well as educational practice. The CCSS establish outcomes for each grade level that are far more focused, coherent, and rigorous than most previous sets of states’ standards. This white paper created jointly by Achieve, PARCC, and EDC (with support from the Joyce Foundation) discusses purposeful and effective formative assessment and closes with guiding criteria that should be used when either designing or selecting formative assessment tasks to measure progress on the CCSS. These criteria and their implementation have significant policy implications for the education and assessment of young children, including the crucial role that formative assessment ought to play, as well as the importance of providing the time, space, and support for educators to engage in its effective implementation.

Multiple longitudinal research studies link learning in the early grades with college and career readiness (e.g., Hart & Risely, 1995; Dickinson & Tabors, 2001). For this reason, the new standards are specified beginning in kindergarten, when most children enter formal schooling. The National Research Council’s (NRC) report on early childhood assessment (2008) stresses that learning standards, such as CCSS, must guide any large-scale assessment system for children, but that standards, by themselves are not enough guidance, particularly in the early years. For assessments to measure exactly what is intended by the standards, they must be both culturally sensitive – not giving preference to one culture over another – and experienced as playful while still challenging and seriously viewed. This is particularly important in the case of assessment for learning which is designed to both inform instruction and provide ongoing learning opportunities for students. Assessment for learning is often described as formative assessment, widely regarded as the core assessment practice for educators of early learners.

The purpose of formative assessment is to provide information that guides teaching and informs learners. Formative assessment often uses the same practices and techniques teachers use during daily instruction. It should be embedded regularly into instruction because it enhances learning in two key ways. First, formative assessment tasks and questions are designed to meet students where they are and elicit concrete evidence of student learning relative to a specific learning standard. Second, formative assessment provides feedback to the teacher and the student regarding student progress along a well-developed learning trajectory. In this vein, formative assessment opens a venue for communication that gives both the teacher and the child information about the growth that needs to occur in order to close the gap between current understanding and desired learning.

Design Principles for Formative Assessment

Due to the wide variety of experiences brought by incoming students, well designed formative assessment in kindergarten first, and second grades is likely one of teachers’ best tools in meeting the needs of all students and helping them to progress in the learning expectations in those grades. It helps teachers see where their students are and identify the next steps needed. The challenge, then, is to get
such assessment right. The first and essential step is to match the assessment type with its purpose. Additional design principles must clearly guide the creation of all assessment tasks as well as the productive, positive implementation of the assessment to ensure that it best meets the needs of children and teachers:

- **First,** *any* assessment must have fidelity to whatever it is intended to measure: at present, that means alignment with the CCSS.
- **Also,** assessments are useful only to the extent that the information they gather that is valid: in all cases, this includes being as clear of influence or bias as possible.
- **Finally,** *formative* assessment has one more requirement must be timely, regular, and useful to both the teacher and the student, and it must be embedded within instruction rather than competing for instructional time, as its purpose is to guide, support, and inform learning and instruction.

Summarized briefly: formative assessment must be focused, valid, and instructionally useful. These three categories suggest seven principles for the crafting of good formative assessments. These principles are based on a large body of research literature on child development, including development of advanced academic mathematics and ELA skills; research on best-practices in formative assessment and associated links to instruction; and the insights of professional organizations and national reform efforts, including the National Association for the Education of Young Children (NAEYC), the National Research Council, the National Reading Panel, and the National Council of Teachers of Mathematics (NCTM). Specifics of each of the seven design principles are described in the respective sections.

**Focus**
1. Aligned to Common Core State Standards

**Gathering Valid Data**
2. Developmentally appropriate
3. Accessible to children from diverse cultural and linguistic backgrounds
4. Experienced as playful

**Instructionally Useful**
5. Clearly linked to instruction
6. Able to provide direct feedback to learners, supporting learning as well as teacher-child communications
7. Include methods to cleanly observe and record student actions and understanding

This report provides examples of how the principles might be realized through assessment design to support the needs of children and teachers in kindergarten and first grade in mastery of the CCSS. While the *examples* focus on assessing kindergarteners and first graders—a new challenge presented by the CCSS—the *principles* of sound formative assessment practice apply K-12 (see *Additional Considerations* section at the end of this document for more details).
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Formative assessment must be focused

1. **Assessment must align with the CCSS**

Any assessment must measure attainment of the desired standards. An essential test of any assessment is the alignment between the design and purpose, and, particularly in the case of formative assessment, how these in turn support learning and drive improvements in instruction (Lesaux & Marietta, 2013). A formative assessment designed to measure the CCSS must correspond closely with the standards in letter and spirit. Marzano, Yanoski, Hoegh & Simms (2013) recommend that common assessments for the CCSS align instruction by not only helping teachers identify the steps necessary for proficiency but, perhaps more importantly, by raising teachers’ awareness of the learning trajectory needed to accomplish big goals. For the CCSS, the overarching goal is college and career readiness.

Formative assessments closely align with the CCSS when they meet the following criteria:

   a. The assessment measures specific content standards but also expects or requires the use of the anchor (ELA/Literacy) and practice (mathematics) standards. This is clear through the design of the tasks, but is also made explicit with an introduction or overarching rationale.

   b. The tasks are designed to reflect and promote the progression of standards, vertically aligning kindergarten with first grade, first grade with second grade, and so on.

   c. There is an explicit and clear link between each task and the standard it measures.

   d. The tasks encourage the use of ways of thinking or practices that are valued in the respective disciplines, but are neither treated separately from, nor secondary to content standards.

To meet these criteria, formative assessment must require the higher order skills needed for students to participate creatively and actively in their immediate worlds and in the disciplines. To build these skills, the standards must be assessed in a coherent, connected fashion, in contrast to a fragmented approach that addresses each standard in isolation in a checklist format.

Gathering Valid Data

2. **Assessment must be developmentally appropriate**

Clearly, assessment methods that are not developmentally appropriate cannot glean valid information. Formative assessments can be developmentally appropriate when the assessment structure:

   a. Limits the time required to administer any individual assessment

   b. Uses high-quality, authentic texts or engaging tasks that are at a suitable stage in the trajectory of the learning progression

   c. Provides a high ceiling to gather information on children who perform above expectations, as well as a low (but rigorous) threshold for children whose skills are emerging

   d. Allows students to demonstrate understanding in different ways, given the individual variation in young children
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Time is a critical consideration. Five to seven-year old students should not be engaged in lengthy, individualized assessment tasks not only because of the burden it places on their attention spans and the resulting risk to their validity, but also because it is important to preserve access to instruction by maximizing time spent on learning (Lesaux & Marietta, 2013).

3. **Assessment must be accessible to children of diverse cultural and linguistic backgrounds**

Clearly, assessments whose results are skewed by cultural or linguistic difference are likely not to be accurate reflections of the basic competencies they are intended to reveal. Children come to school from extremely different backgrounds and experiences, and correspondingly display a wide range of skills in kindergarten and first grade (e.g., Hart & Risely, 1995). Children who face barriers in schooling—whether linguistic, cultural, economic, or due to disability—often face additional barriers when participating in assessment tasks (Michaels, 1981; Heath, 1983; Snow, Burns & Griffin 1998). These children may be unfamiliar with the typical language of common forms of assessment, which frequently involve a teacher initiating a question to which a child must produce a pre-identified response that is aligned with the specific expectations of the assessment (Cazden, 2001). Questions that draw upon background knowledge that is presumed universal, but in fact is not, limit a child’s ability to demonstrate understanding (Snow et. al., 1998).

English language learners (ELLs) represent a special case for assessment, since limited proficiency in English language skills can obviously threaten the validity of the assessment task. A meta-analysis of the effectiveness of accommodations for ELLs found that these accommodations are generally insufficient to close language gaps (Keiffer, Lesaux, Rivera & Francis, 2009), and most are not appropriate for early readers in kindergarten and first grade. Presenting the directions and/or task in the native language, as well as allowing responses in the native language, provides a good but partial solution for inclusive formative assessment (Snow, Burns & Griffin, 1998). Keiffer et al. recommend that ELLs are explicitly taught the academic language needed to understand and participate in assessment in any discipline (in fact they must also be explicitly taught the language of the discipline). An understanding of the typical growth trajectories of ELLs is also helpful in designing assessment task. In particular, a strong body of research shows that ELLs tend to learn foundational literacy skills such as phonics and decoding as quickly and at the same time as peers, whereas text comprehension, vocabulary and language, and speaking and listening skills lag, requiring earlier identification and stronger intervention (Kieffer & Vukovic 2013; Lesaux, 2012).

Formative assessment can include children from diverse cultural and linguistic backgrounds when the assessment offers:

a. Specific and clear “discontinue” rules to guide teachers in determining when the assessment task is inappropriate for specific children (i.e., in rare cases when a disability, limited English language skills, or limited formal schooling experiences make it unproductively frustrating for a child to continue with the assessment tasks).
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b. Familiar language for task administration, with the possibility of teaching or explaining key vocabulary the child needs to participate in the task. When possible and appropriate, the directions and potential responses should be given in multiple languages.

c. A low-threshold for entry coupled with careful discussion on ranges of acceptable answers, thereby allowing for the broadest possible range of participation.

d. Multiple modalities for the child to draw on (e.g., drawing, pointing, tapping, writing, etc.), rather than relying solely on speaking and listening skills.

In doing so, the opportunity to build bridges between children’s varying experiences and their new learning becomes possible (NAEYC, 2009).

4. Assessment should be experienced as playful

Assessment, even when carefully designed to be as culturally and linguistically unbiased as possible, is highly susceptible to bias created by cultural expectations not only of those creating and administering the assessment but by those taking it. For example, Raven’s Advanced Progressive Matrices were designed with no language and no cultural content for the specific purpose of being a culture-free test of general cognitive ability. Yet it produces different results depending on whether the respondent perceives it as “a set of puzzles” or as “an IQ test” (Brown, Day, 2006). Under the normal conditions in which this test is given, African Americans perform less well than Whites; when the exact same items in the exact same form and order are described as a set of puzzles, the difference disappears entirely. The significance of this finding is, of course, enormous, especially in regards to understanding and addressing achievement gaps, and not nearly widely enough known in educational circles. Expectation affects performance; performance confirms expectation; and the cycle feeds on itself. Though this study focused on race, the implications are far broader. At its essence, the study shows that assessment conditions can influence assessment results; whether the experience is perceived as a test or as play can be sufficient to change the results. And though this study focused on race, it is not unreasonable to suppose that anxiety/threat effects can differentially affect people based only on individual sensitivities and do not depend on racial, ethnic, cultural, socio-economic, and gender differences. These effects can follow children throughout their schooling. For these reasons, assessments for instruction should be experienced as playful, even though the work being done is considered serious work.

Interactive play with materials and social involvement with others are children’s natural learning mode outside of school. These interactions clearly engage them, grab their attention, and play a major role in children’s development. Through this play also come excellent opportunities for assessment, in part because physical and verbal interactions are visible and therefore are easily available data from which inferences about curiosity, engagement, skill, and learning can often be made. Good formative assessments should generally have a playful feel to both the child and the teacher, largely to help assure validity, but also just because that keeps the whole experience more pleasant for both. In fact, the best
formative assessments feel “invisible” because they blend seamlessly into regular classroom instruction and look and feel like a regular part of the classroom day (Harp, 2006; National Research Council, 2009).

Appropriate conditions for non-threatening, playful, formative assessment include:

a. Tasks are set up as “puzzles” or other engaging activities to be worked out that students and teachers view as worthwhile
b. Students do not perceive a risk for performing in different ways
c. Conducting it in the natural scope of instruction

If the assessment meets these conditions, teachers can create environments where evidence gained from formative assessments provides an accurate picture of what students have learned or what they have not mastered yet. Another potential benefit is worthy of mention. Students’ performance is often influenced by the degree to which they trust their teacher and feel a positive relationship. By nature, children’s cognitive, emotional, and academic capabilities are intertwined, and strength or weakness in one domain can facilitate or impede development of others (Pianta & Walsh, 1998). Children who form strong and trusting relationships with their teachers perform better on academic tasks (Pianta, 1999). In addition, feeling a sense of belongingness at school promotes a child’s motivation to undertake difficult and prolonged challenges (Deci, Vallerand, Pelletier & Ryan, 1991), such as those required by the CCSS. Engaging in playful, risk-free tasks has greater potential to enhance positive teacher-student interactions than other assessments might.

Instructional usefulness of formative assessment

5. **Assessment must directly inform and support teachers’ instructional planning**

The point of formative assessment is to inform and guide instruction. Even though formative assessment provides feedback to both the teacher and the student, the teacher must be able to implement it effectively and use the data gathered. Thus, assessment tasks need to be easy for teachers to manage and administer, require no cumbersome or unusual equipment (however, technology can be a useful tool), and they must be easy to integrate into teachers’ teaching work. Tasks must enhance, not detract from, the important work of teaching. They should not stand out as “tests.” The assessment task itself, as well as the results, should provide both learning opportunities as well as clear insights on students’ developing strengths and needs, thereby directly informing instructional planning (Lesaux & Marietta, 2013).

Formative assessment can guide instructional planning if it meets the criteria below:

a. Combines foundational skills with the more advanced academic skills that promote college and career readiness
b. Draws out and encourages students’ use of practices that are valued by the disciplines
c. Includes tasks that are higher order, such as supporting their positions with detailed evidence and solid reasoning, or using appropriate tools to design a solution
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d. Includes complex, grade-level topics, texts, and tasks
e. Includes open-ended questions that illuminate student thinking and surface any misconceptions
f. Appropriately distinguishes the underlying skills and understandings that lead to proficiency on the standards
g. Models a developmental progression of skills and understandings (this is true within formative assessment tasks, as well as across them) that require children to participate in increasingly complex tasks throughout the academic year

In following such criteria, teachers are able to make decisions on what minor modifications or major changes in instruction need to be made in order to ensure that all students continue to grow along their learning trajectories. Moreover, teachers can devise and differentiate appropriate lessons and activities for groups of learners accordingly. (Ainsworth & Viegut, 2006; Clements, 2009)

6. Assessment must provide direct feedback to learners, supporting learning as well teacher-child communications

This is perhaps one of the least recognized, yet most critical, aspects of formative assessment. A task is not truly formative if the only person who receives information and feedback is the teacher. Formative assessment is at its most useful when it also informs the child, promoting learning by giving direct feedback in developmentally appropriate, accessible ways. Success at bicycle riding is measured not by the commentary of others, but by whether the bike does what the rider wants it to do. Similarly, feedback from formative assessment has the greatest authenticity when it comes through the nature of the task, not a report from the authority. Typically, providing feedback through the task is hard to engineer; therefore, useful feedback can certainly also come through the adult who presents the task. The important element is that the task be as usefully informative to the child as it is to the teacher, that it helps the child learn, not merely indicate whether the child has learned or not. It is instruction, not just measurement.

Effective feedback to learners is often more challenging to construct than the content of the assessment task because it must be appropriate, timely and respond precisely to what a student has done or was thinking. Yet research demonstrates that teachers can miss students’ knowledge and abilities when communication or ways of working are hampered by expectations, as well as cultural or linguistic differences (Michaels, 1981; Heath, 1983; Snow, Burns and Griffin, 1998). Promoting effective feedback and communication through an assessment task not only helps ensure valid results, but is critical to students’ making progress toward goals. It ensures that learning does not occur at the sole discretion of the teacher, but actively involves students in their own learning. Formative assessment supports direct feedback to learners if it meets several of the criteria below:

a. Provides guidance to teachers on appropriate prompts and responses for the administrator/teacher that help the student understand where they are and where they need to go next.
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b. Allows children to try more than once, or to try the task again at a different point in the academic year

c. Tasks are designed so that students know, without teacher intervention, if they have made progress on the task

d. Students can get feedback from peers or do an appropriate self-assessment

e. Students have a sense of what to do next (whether from the task, the teacher, their peers or self-assessment) in order to make progress.

Formative assessment should not focus solely on what children can do independently, but should also be inclusive of what they can do with support from other children or adults (NAEYC, 2009). Therefore, the teacher can participate in the task to provide scaffolding while simultaneously assessing (NAEYC, 2009) as would be characteristic of instructional practice; the challenge, of course, is to limit the scaffolding to precisely what is needed to support learning progress. All of the above considerations must be taken into account in the design and implementation of developmentally appropriate assessment.

In order for young children to most benefit from formative assessment tasks, the task itself should provide effective, risk-free feedback to learners, which does not interfere with positive relationships between the teacher and student. In doing so, the task becomes an indispensable tool in building student engagement and allowing joyful learning to take place (NAEYC, 2010).

7. Formative assessments must provide methods for clean observation and recording of student behaviors.

Formative assessment tasks can take place one-on-one or in small-groups or even with a whole class, but the observation and recording methods must allow the administrator to capture the data accurately. In whole-class activities, that often means the creation of easy-to-use observational checklists of classroom behavior, with ways to tie events to individual students’ names. Formative assessment should also include multiple measures of data collection (including teachers’ observations, interviews, student work samples, and their performance on authentic tasks) and must be used systematically over time (NAEYC, 2002) to provide ongoing evidence. These multiple sources allow for more accurate understanding of an individual’s learning, even when the task is used in a whole class setting.

Additional considerations

Applications beyond K-1

Much of this document refers to examples and uses vocabulary specific to kindergarteners and first graders. However, the principles have application to all grade levels. Even with older students,
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Assessment must be focused on the desired standards, gather valid information and be useful for instruction. Tasks must be

- aligned to standards (the CCSS);
- linked to instruction – a means for measuring learning as well as providing opportunities for learning;
- accessible to all children regardless of cultural or linguistic background;
- developmentally appropriate; and,
- experienced as playful – even older students like games and puzzles which can provide rich learning and assessment opportunities.

As the students advance in their schooling, their abilities increase and consequently so must the content and complexity of the tasks, but the general principles still apply.

Application to Summative Assessment

Though there are differences between formative and summative assessments, the guidelines presented in this document largely apply to both. Because the goal of summative assessment is to measure performance mastery of particular content, these assessments therefore don’t necessarily provide timely information to guide instructional planning or provide feedback to the teacher and the student for the sake of advancing learning. However, these assessments and tasks must continue to be developmentally appropriate, culturally and linguistically unbiased, focused on the standards intended to be assessed and, particularly at the early grades but even with older students, can be presented in a “playful” manner to ease anxiety effects.

Professional Development

Professional development on how to administer the task and (most importantly) how to use the results to tailor instruction are of critical importance and have the potential to improve the power of the assessment and to influence the overall quality of teaching and learning. All staff, including teachers and administrators, need access to professional development and they need time to analyze and understand the implications for how to meet young children’s developmental and learning needs (National Research Council, 2009).


Marzano, R.J., Yanoski, D., Hoegh, J. K., & Simms, J.A. (2013). *Using Common Core Standards to Enhance Classroom Instruction and Assessment*. Bloomington, IN: Marzano Research Laboratory

